

Date: Thursday, 3/22/2007 1:52:28 PM
 User: Kim Johnston

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	MID TUBE ASSEMBLY
Job Number :	31315		
Estimate Number :	10469		
P.O. Number :	N/A	Part Number :	D3391023
This Issue :	3/22/2007	S.O. No. :	N/A
Prsht Rev. :	NC	Drawing Number :	D3391 REV F
First Issue :	N/A	Project Number :	N/A
Previous Run :	31314	Drawing Revision :	F
		Material :	N/A
Written By :		Due Date :	4/10/2007
Checked & Approved By :	Qty: 1 Um: Each		
Comment :	Est. A 05.10.20 New Issue KJ/EC Est. B 06.02.10 ECN773 dwg rev.D EC est C 07.03.20 rev F dwg EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D25001100	Skidtube Extrusion
-----	-----------	--------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE EXTRUSION

Pick:

Qty	Part Number	Description	Batch
1	D2500-1-100	Extrusion	B24593

DP 7-3-28

2.0	D3391021	Fwd Tube Assembly
-----	----------	-------------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Fwd Tube Assembly

B30924

3.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) as per Dwg D3391

4-Open float bag holes to Ø0.250" as per Dwg D3391 using DT8796D visual aid Jig

5-C'sink float bag holes as per Dwg D3391

6-Open remaining holes to Ø0.375" except for fwd saddle holes of detail "J"

7-Remove .030" from Fwd indexing Ridge as per Dwg D3391

8-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

DP 7-3-28

DP 7-3-28

DP 7-3-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/22/2007 1:52:29 PM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31315

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description:

9-Debur

10-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

11-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J"

12-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.250" and c'sink (20 holes) as per Dwg D3391

13-Open .375" holes to .438"

14-Locate D3391-021 in D3391-023 using wearplate holes

14- Transfer drill saddle holes in D3391-021

15-Debur and blow out all chips from inside tube

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1 --

6.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

7.0

D33891

Web



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

WEB

Pick:

Qty

Part Number

Description

Batch

1

D3389-1

Web

A/R

Sikaflex-241/-291

Sikaflex expire date:

Start:

Time:

Finish:

Time:

B 30790

M 103 561

7-10-1

7:30 7-5-9

8:45 8:45

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/22/2007 1:52:29 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31315

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description:

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

2-Bond web in place as per Dwg D3391 & QSI 015.

Adhere for 12 hours)

50 7-5 9

(PW)

9.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

07-05-25 (1)

10.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M-L 07/05/30 (1)

11.0

NAS1330C3KB116

Insert



Comment: Qty.: 20.0000 Each(s)/Unit Total: 20.0000 Each(s)

Insert

Pick:

Qty

Part Number

Description

Batch

20

NAS1330C3KB116

Insert

M100712

12.0

NAS1330C3KB166

INSERT



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)

RivnuT

Pick:

Qty Part Number

Description

Batch

10

NAS1330C3KB166

Insert

M102849

13.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install inserts as per dwg D3391

touch-up holes in D3391-021 with alodine

M-L 07/05/30 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
0705-25	8.0	QCS	J	0705-25	1	J	J
		ADD QCS perm change J				0705-25	0705-25

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: ☒ Date: 070612

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/22/2007 1:52:29 PM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: MID TUBE ASSEMBLY

Job Number: 31315

Part Number: D3391023

Job Number:



Seq. #:

Machine Or Operation:

Description :

14.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Inspect each insert using DT8821

2405-30 ①

15.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

*B3274
PPP Po 7/6/12*

16.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

*①
2/21/12*

Job Completion



U 27-6-12

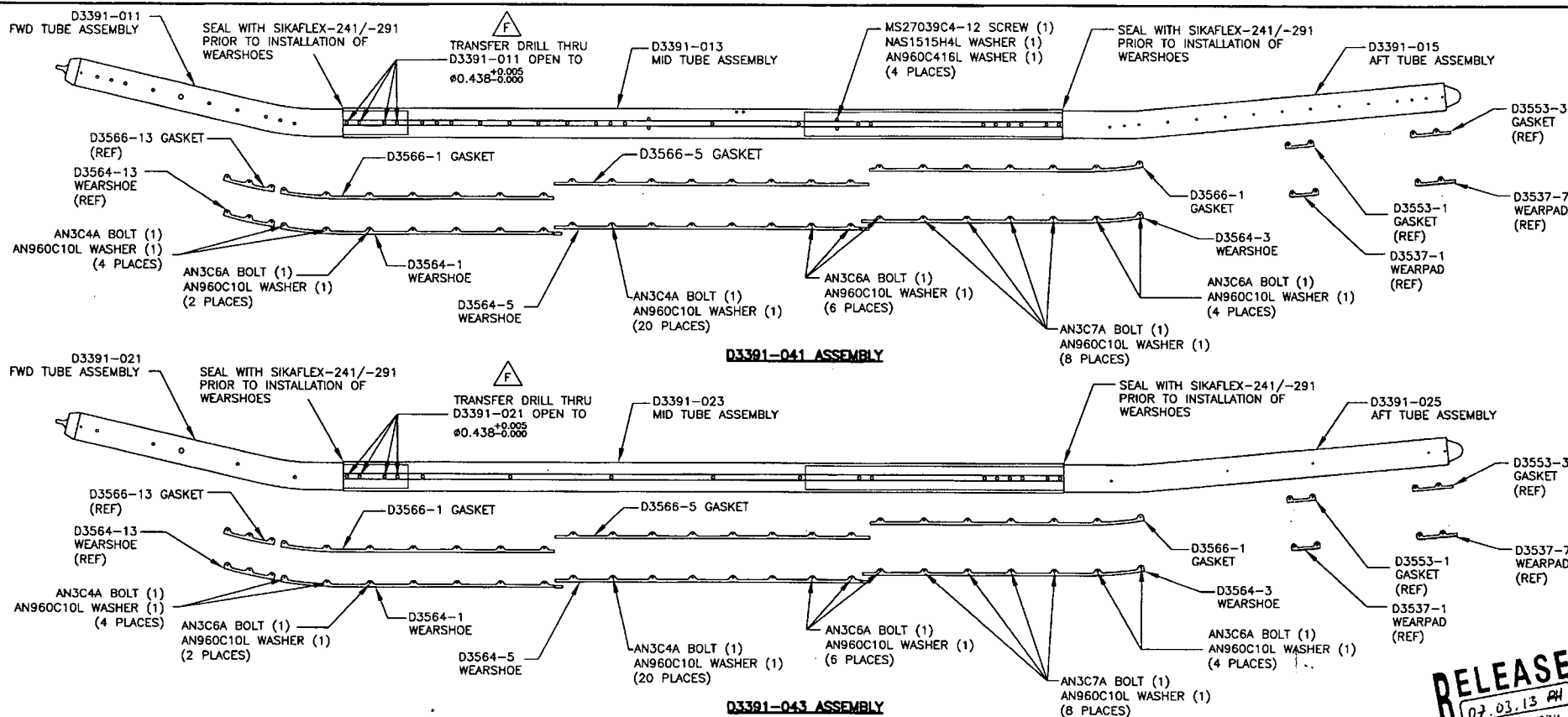
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-043		
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

GENERAL NOTES

- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 5) USE DART DRILL TEMPLATE DTB217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS. C'SINK #0.391/#0.425 x 100' AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

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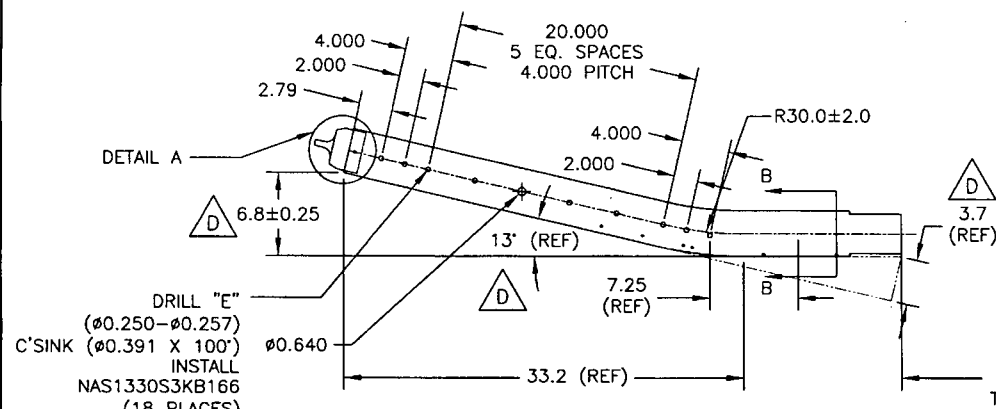
F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	PH	DRAWN BY
CHECKED	PH	APPROVED
DATE	07.01.18	TITLE
		412 FLOAT SKIDTUBE
		SCALE
		NTS

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PORT HADLOCK, WA

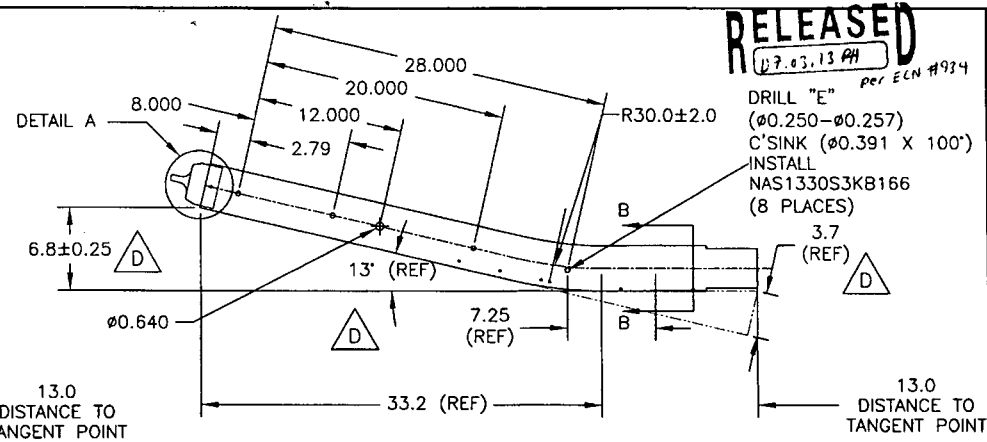
DRAWING NO. D3391 REV. F
SHEET 1 OF 5

NO. 31315
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WITHOUT NOTICE

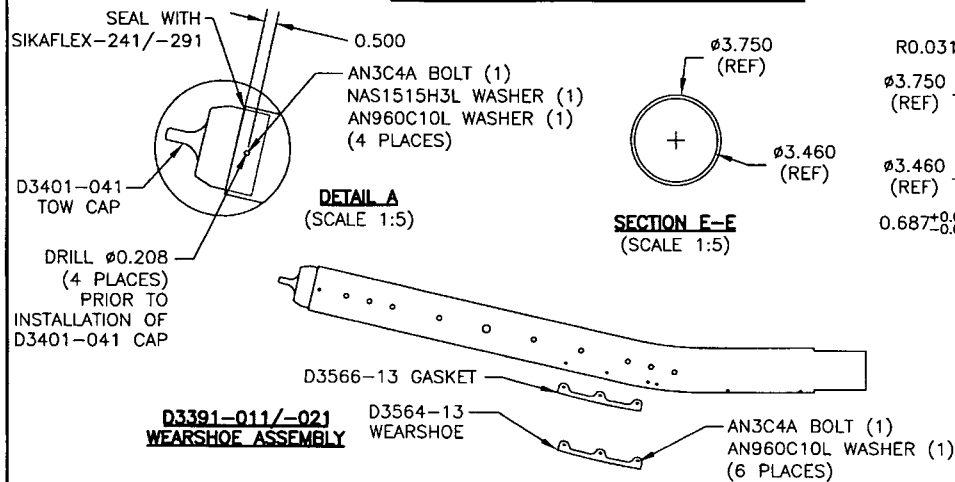
DRILL "E"
($\phi 0.250 - \phi 0.257$)
C'SINK ($\phi 0.391 \times 100^\circ$)
✓INSTALL
NAS1330S3KB166
(8 PLACES)



D3391-011 ASSEMBLY AND BENDING DETAIL



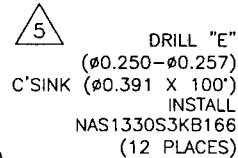
D3391-021 ASSEMBLY AND BENDING DETAIL



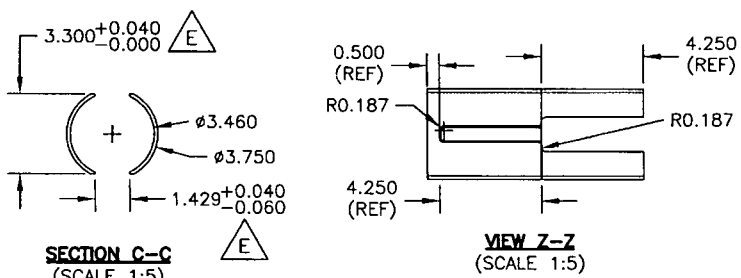
D3391-011/-021
WEARSHOE ASSEMBLY

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

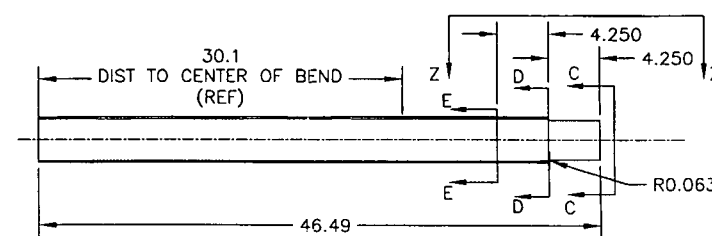
QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X		D3391-011	FWD TUBE ASSEMBLY
	X	D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)



SECTION B-B
(SCALE 1:5)



VIEW Z-Z
(SCALE 1:5)



D3391-1 DRILLING AND CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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DESIGN

2. PH

CHECKED 

DATE _____

07.01.18

DRAWN BY

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PORT HADLOCK, WA

DRAWING NO.

D3391

TITLE

412

KIDTUBE

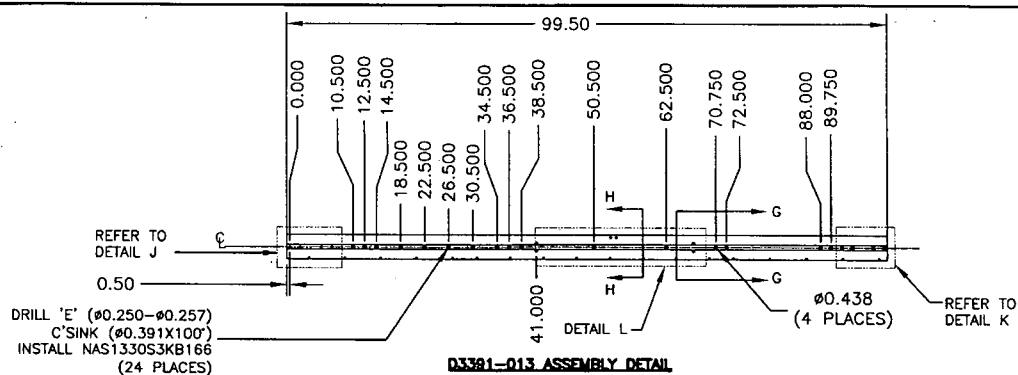
REV. F

SHEET 2 OF 5

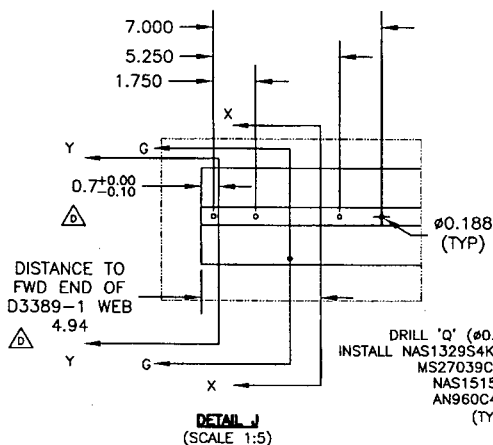
SCALE

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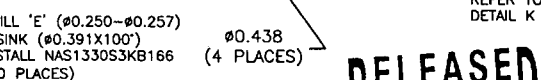
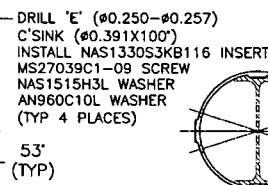
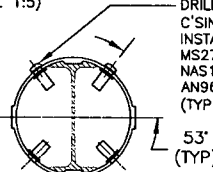
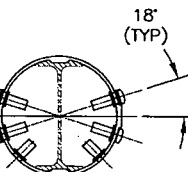
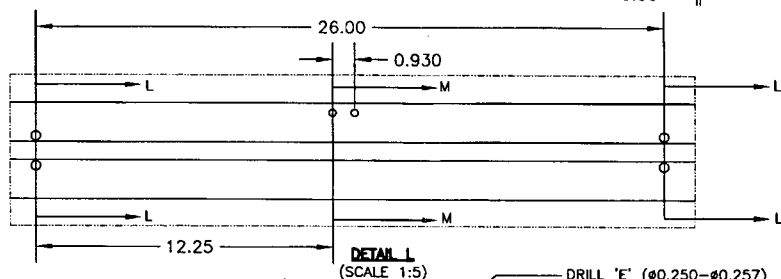
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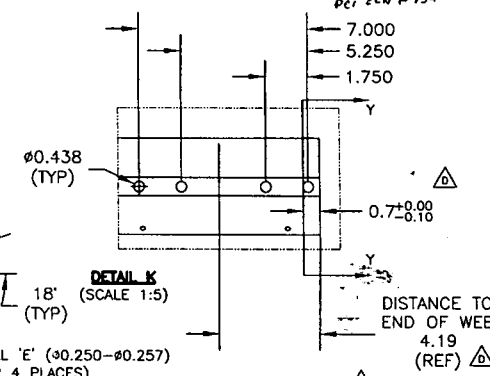
D3391-013 ASSEMBLY DETAIL



DRILL 'Q' (#0.332-#0.338)
INSTALL NAS1329S4KB140 INSERT
MS27039C4-08 SCREW
NAS1515H4L WASHER
AN960C416L WASHER
(TYP 4 PLACES)



D3391-023 ASSEMBLY DETAIL



RELEASED
07.03.13 RH
Per ECU 10934

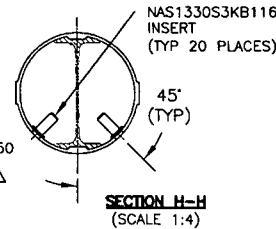
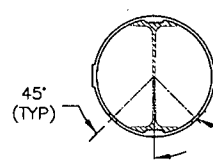
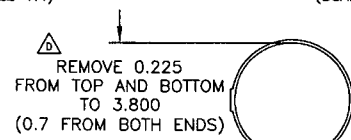
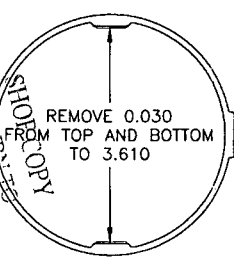
D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X		D3391-013	MID TUBE ASSEMBLY
	X	D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330S3KB116	INSERT (OR NAS1330C3KB116)
24	10	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1329S4KB140	INSERT (OR NAS1329C3KB140)
4		NAS1515H3L	WASHER
4		AN960C10L	WASHER
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
4		MS27039C1-09	SCREW
4		MS27039C4-08	SCREW

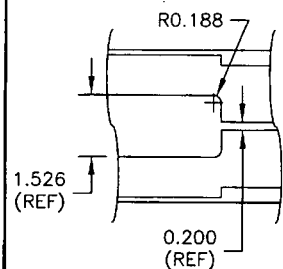
D3391-013/-023 MID TUBE ASSEMBLY

- MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015

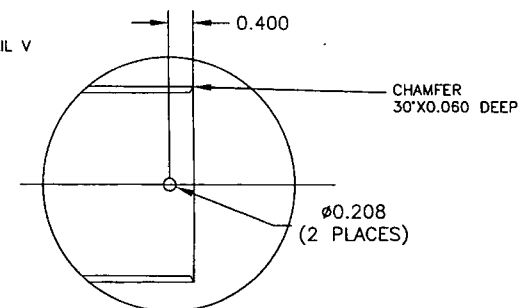
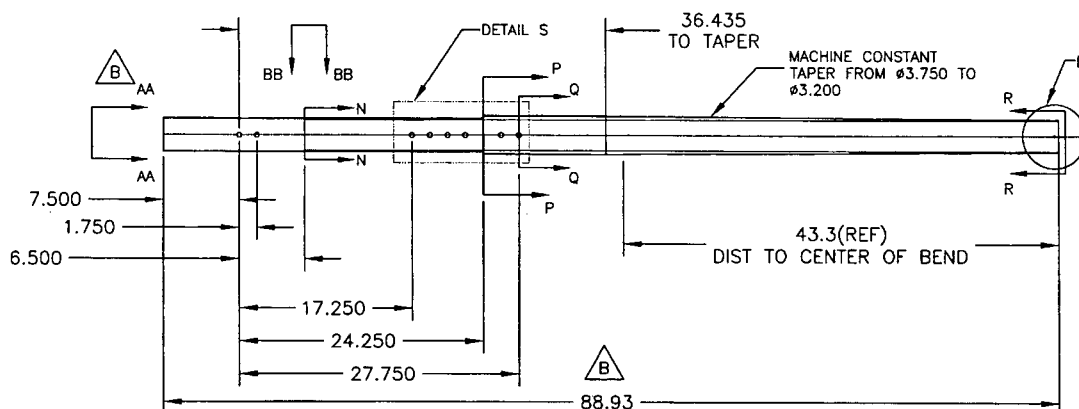
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CHECKED H	APPROVED H	DRAWING NO. D3391		REV. F SHEET 3 OF 5	
DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE		SCALE 1:20	

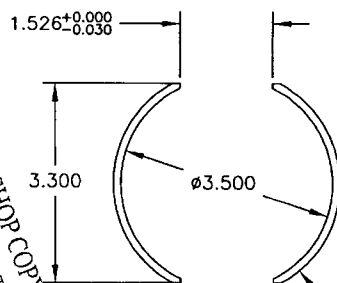


VIEW BB-BB
(SCALE 1:3)

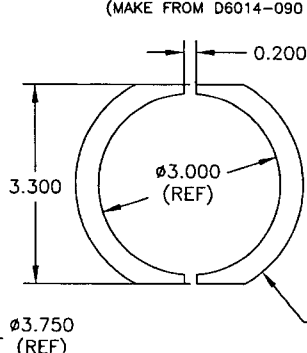


DETAIL V
(SCALE 1:2)

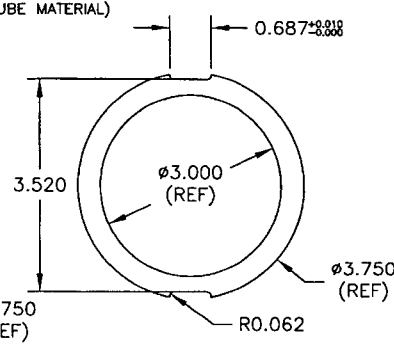
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



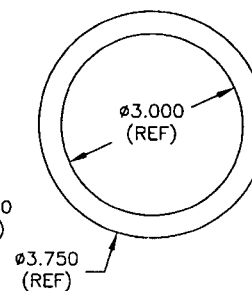
SECTION AA-AA
(SCALE 1:2)



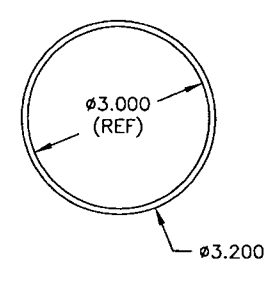
SECTION N-N
(SCALE 1:2)



SECTION P-P
(SCALE 1:2)

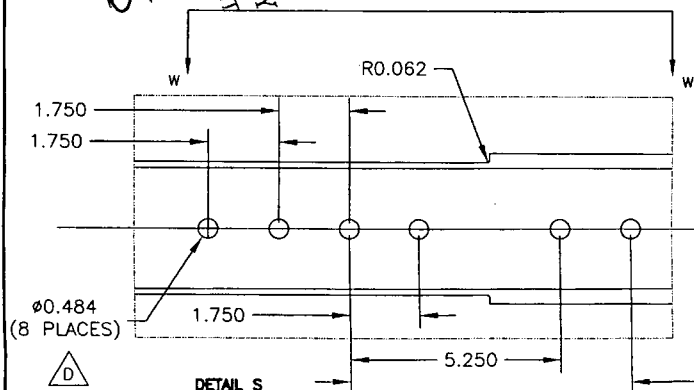


SECTION Q-Q
(SCALE 1:2)

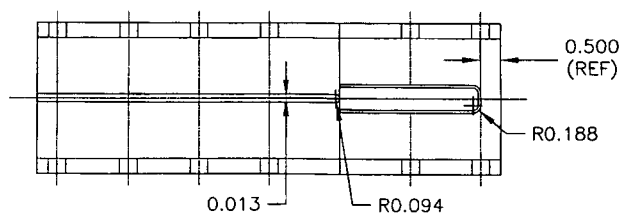


SECTION R-R
(SCALE 1:2)

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WORK ORDER



DETAIL S
(SCALE 1:3)



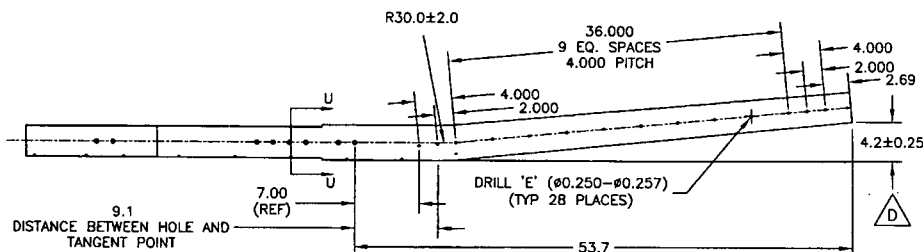
VIEW W-W
(SCALE 1:3)

RELEASED
07.03.13 PH
per ECU #934

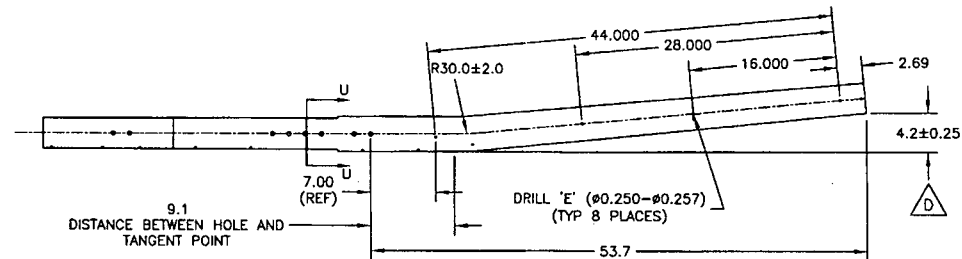
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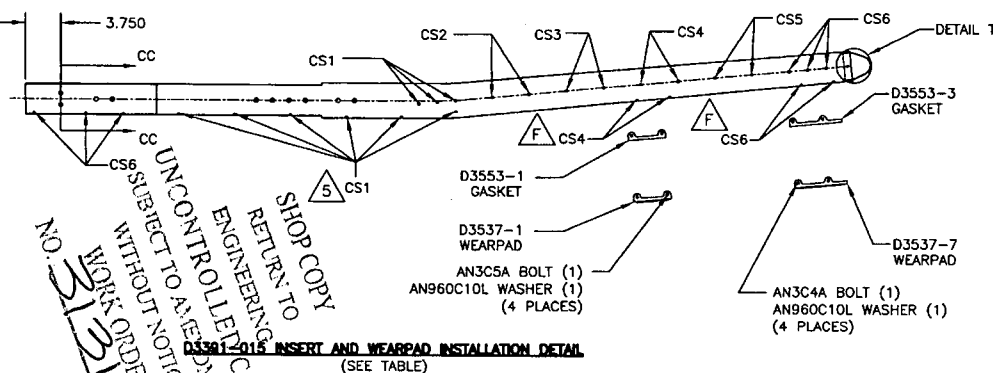
DESIGN PH	DRAWN BY PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED #	APPROVED #	DRAWING NO. D3391
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	REV. F SHEET 4 OF 5 SCALE 1:12



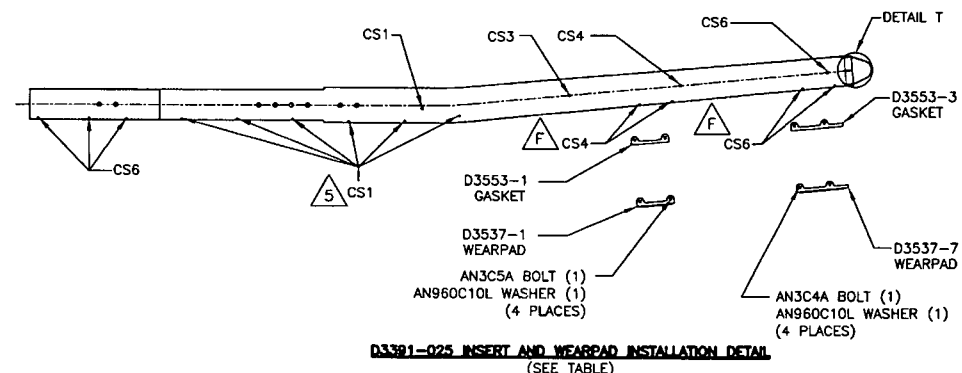
D3391-015 BENDING AND ASSEMBLY DETAIL



D3391-025 BENDING AND ASSEMBLY DETAIL



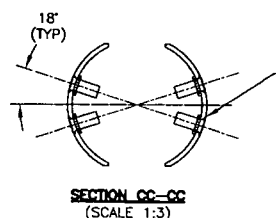
D3391-015 INSERT AND WEARPAD INSTALLATION DETAIL (SEE TABLE)



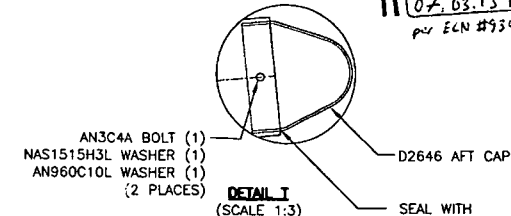
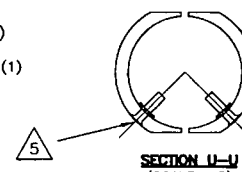
D3391-025 INSERT AND WEARPAD INSTALLATION DETAIL (SEE TABLE)

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



DRILL 'Q' (Ø0.332-Ø0.338)
C'SINK (Ø0.529X100")
NAS1330S4KB151 INSERT (1)
(4 PLACES)



C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	NAS1330S3KB366
CS2	4		Ø0.391	NAS1330S3KB366
CS3	4	2	Ø0.391	NAS1330S3KB316
CS4	8	6	Ø0.391	NAS1330S3KB266
CS5	4		Ø0.391	NAS1330S3KB216
CS6	16	12	Ø0.391	NAS1330S3KB166

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DESIGN RH	DRAWN BY RH	DART DART AEROSPACE USA, INC. PORT HADLOCK, MA
CHECKED H	APPROVED H	DRAWING NO. D3391
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	REV. F SHEET 5 OF 5 SCALE 1:12

RELEASED
07.03.13 RH
per EGN #934